UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,319	05/10/2001	Hiroshi Onaka	064731.0188	5928

7590 09/13/2004

Terry J. Stalford, Esq.
Baker Botts L.L.P., Suite 600
2001 Ross Avenue
Dallas, TX 75201-2980

EXAMINER	
NGUYEN, CHAU M	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/853,319	ONAKA, HIROSHI	
	Examiner	Art Unit	
	Chau M Nguyen	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June, 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Paper No. 11 (Amendment) filed on 09 June, 2004.

2. Claims 1-12 have not been changed. Claims 13-16 have been added.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 5-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa Hideki (Hereinafter "Nishizawa") (Japan Pat. No. 2000-059300 A) (Electronic-version translation is also attached for understanding purpose), in view of Miyamoto et al. (Hereinafter "Miyamoto") (U.S. Pat. No. 6,559,996 B1).

4. As claim 1 and 5, Nishizawa discloses a system and method for communicating a clock signal over an optical link, comprising:

means (14, fig. 1) for receiving a multimodulated optical information signal comprising phase (non-intensity) modulation for a data signal and clock signal;

means (16) for recovering the clock signal based on the intensity modulation of the multimodulated optical information signal;

means (13) converting the non-intensity modulation for the data signal to intensity modulation for the data signal; and

means (18) recovering the data signal from the intensity modulation for the data signal using the clock signal (Abstract).

Nishizawa does not clearly show received signal comprising intensity modulation for a clock signal. However, Miyamoto (fig. 26) shows (at transmitter) the clock signal (19) is intensity modulated by an intensity modulator (31), and the data signal (18) is phase modulated (non-intensity modulated) by a phase modulator (41). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to apply an intensity modulator and phase modulator for creating a multimodulated optical information signal comprising non-intensity modulation for a data and intensity modulation for a clock signal as taught by Miyamoto and apply this signal into the receiver end of Nishizawa, where the clock signal can be extracted. One having ordinary skill in the art would have motivated for doing this because, with multimodulation method (phase modulation and intensity modulation), the clock signal and the optical signal will be synchronously communicated between transceiver and receiver. Thus, no inter-symbol reference occurs under multi-path fading condition due to polarization dispersion in a transmission line (Miyamoto, col. 14, lines 33-39).

As claim 9, Nishizawa discloses an optical receiver (fig. 1), comprising:

an interface (14) for receiving a multimodulated optical information signal comprising phase (non-intensity) modulation (11) for a data signal and a clock signal;

a clock recovery element (16) operable to recover the clock signal based on the intensity modulation of the modulated optical information signal;

a data recovery element (18) operable to recover the data signal from the non-intensity modulation of the multimodulated optical information signal based on the clock signal (Nishizawa, Abstract, Solution).

Nishizawa does not clearly show received signal comprising intensity modulation for a clock signal. However, Miyamoto (fig. 26) shows (at transmitter) the clock signal (19) is intensity modulated by an intensity modulator (31), and the data signal (18) is phase modulated (non-intensity modulated) by a phase modulator (41). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to apply an intensity modulator and phase modulator for creating a multimodulated optical information signal comprising non-intensity modulation for a data and intensity modulation for a clock signal as taught by Miyamoto and apply this signal into the receiver end of Nishizawa, where the clock signal can be extracted. One having ordinary skill in the art would have motivated for doing this because, with multimodulation method (phase modulation and intensity modulation), the clock signal and the optical signal will be synchronously communicated between transceiver and receiver. Therefore, no inter-symbol reference occurs under multi-path fading condition due to polarization dispersion in a transmission line (Miyamoto, col. 14, lines 33-39).

As claims 2, 6 and 10, Miyamoto (fig. 26) indicates the non-intensity modulation comprises a phase modulation of a carrier signal.

As claims 3, 7 and 11, Miyamoto includes the non-intensity modulation comprises a frequency modulation of a carrier signal (col. 13, lines 9-11).

5. Claims 4, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa (Japan Pat. No. 2000-059300 A) in view of Miyamoto (U.S. Pat. No. 6,559,996 B1) as applied in the independent claims 1 and 5, and in further view of Shirakara et al. (Hereinafter "Shirakara") (U.S. Pat. No. 6,618,352 B1).

As claims 4, 8 and 12, the combination system of Nishizawa and Miyamoto as described in the section 3 above further differs from claims 4, 8 and 12 in that it does not clearly show the data signal is phase shift keyed in the multimodulated optical information signal and the clock signal is intensity shift keyed in the multimodulated optical information signal as cited in the claim invention (claims 4 and 8). However, Shirikara describes the signal data signal is phase shift keyed in the multimodulated optical information signal (col. and the clock signal is amplitude (intensity) shift keyed in the multimodulated optical information signal (col. 2, lines 4-9 and col. 7, lines 23-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to use both phase shift keying and amplitude shirt keying methods for both data signal and clock signal as taught by Shirikara into the combination of Nishizawa and Miyamoto in order to calculated the phase difference of the signals. One having ordinary skill in the art would have been known that applying such keying method would have permitted the receiver to be stabled in synchronization and can correct phase error due to frequency error and timing error (Shirikara, col. 23, lines 9-16).

6. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa (Japan Pat. No. 2000-059300 A) in view of Miyamoto (U.S. Pat. No. 6,559,996 B1) and in further view of Yano (U.S. Pat. No. 6,078,416).

As claim 13, Nishizawa discloses a method for communicating a clock signal over an optical link, comprising:

receiving (by means 14, fig. 1) a multimodulated optical information signal comprising phase (non-intensity) modulation for a data signal and clock signal;

recovering (by means 16) the clock signal based on the intensity modulation of the multimodulated optical information signal;

converting (by means 13) the non-intensity modulation for the data signal to intensity modulation for the data signal; and

recovering (by means 18) the data signal from the intensity modulation for the data signal using the clock signal (Abstract).

Nishizawa does not clearly show received signal comprising intensity modulation for a clock signal. However, Miyamoto (fig. 26) shows (at transmitter) the clock signal (19) is intensity modulated by an intensity modulator (31), and the data signal (18) is phase modulated (non-intensity modulated) by a phase modulator (41).

The combination of Nishizawa and Miyamoto still differs from the claimed invention in that it does not show modulation conversion step (to be performed) after recovering the clock signal.

However, Yano (figs. 3 and/or 4) shows the converting the data signal to intensity modulation after recovering the clock signal (Yano, col. 2, lines 17-23).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to imply an intensity modulator and phase modulator for providing a multimodulated optical information signal comprising non-intensity modulation for a data and intensity modulation for a clock signal as taught by Miyamoto, and converting the non-intensity modulation for the data signal to intensity modulation for the data signal after recovering the clock signal as taught by Yano into the system of Nishizawa in order to completely communicate a clock signal over an optical link. One having ordinary skill in the art would have motivated for doing this because with multimodulation method (phase modulation and intensity modulation), the clock signal and the optical signal will be synchronously communicated between transceiver and receiver, and by recovering the clock signal before modulating step, there is a small extinction ratio can be used to remove distortion or jitter in the signal (Yano, col. 2, lines 24-28).

As claim 14, Miyamoto (fig. 26) indicates the non-intensity modulation comprises a phase modulation of a carrier signal.

As claim 15, Miyamoto includes the non-intensity modulation comprises a frequency modulation of a carrier signal (col. 13, lines 9-11).

7. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa (Japan Pat. No. 2000-059300 A) in view of Miyamoto (U.S. Pat. No. 6,559,996 B1) and in further view of Yano (U.S. Pat. No. 6,078,416) as applied in the independent claim 13,

and in further view of Shirakara et al. (Hereinafter "Shirakara") (U.S. Pat. No. 6,618,352 B1).

As claim 16, by considering the combination system of Nishizawa, Miyamoto and Yano as described above in that, the system does not clearly show the data signal is phase shift keyed in the multimodulated optical information signal and the clock signal is intensity shift keyed in the multimodulated optical information signal as cited in the claim invention (claims 4 and 8). However, Shirikara describes the signal data signal is phase shift keyed in the multimodulated optical information signal (col. and the clock signal is amplitude (intensity) shift keyed in the multimodulated optical information signal (col. 2, lines 4-9 and col. 7, lines 23-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to use both phase shift keying and amplitude shirt keying methods for both data signal and clock signal as taught by Shirikara into the combination of Nishizawa, Miyamoto and Yano in order to calculated the phase difference of the signals. One having ordinary skill in the art would have been known that applying such keying method would have permitted the receiver to be stabled in synchronization and can correct phase error due to frequency error and timing error (Shirikara, col. 23, lines 9-16).

Response to Arguments

8. Applicant's arguments have been fully considered, but they are not persuasive.

9. For the 103 rejection based on Nishizawa (Japan Pat. No 2000-059300) and Miyamoto U.S. Pat. No. 6,559,996), Applicants mainly argued:

> "...the references cited by the Office Action teach away from each other and would not be operable if combined as proposed. Nishizawa specially deals with an optical signal of non return to zero (NRZ) code. ... . In contrast, Miyamoto deals with the output of a return to zero (RZ) signal. Thus, ... the cited references teach away from their proposed combination as the output of Miyamoto would not be operable in combination with the components of Nishizawa." (Amendment, Paper 11, pages 8-9).

Further, for the new added claims 13-16, Applicants wrote:

> "... the rejection does not discloses, teach or suggest converting ... after recovering the clock signal." (page 11).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Return-zero and/or Non-return-zero) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, Nishizawa also teaches RZ codes (Nishizawa, Detailed Description, paragraphs [0023] and [0028]). Therefore, it is not teach away. It has been held that the applicant's argument that the reference teaches away was insufficient to overcome the rejection. *In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994), 27 F.3d at 554, 31 USPQ2d at 1132.*

Newly cited reference of Yano (figs. 3 and/or 4) shows intensity modulation to be performed after recovering the clock signal (Yano, col. 2, lines 17-23).

For the above reasons, the references teach all claimed limitations. Therefore, the rejections are maintained.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yano (U.S. Pat. No. 6,108,125) is cited to optical regenerative repeater.

Desurvire et al. (U.S. Pat. No. 5,801,862) is cited to show synchronous modulation method and apparatus for in-line regeneration of a WDM signal.

11. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set for the in 37 CFR 1.135(a).

A shortened statutory period for reply to this final action is set to expired THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later then SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M Nguyen whose telephone number is 571-272-3030. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.M.N.

Sept. 01, 2004

M. R. SEDIGHIAN
PRIMARY EXAMINER